



Updated: July 16, 2004

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ABANDONED URANIUM MINES ON THE NAVAJO NATION ARIZONA

EPA ID# NNN000906087

EPA Region 9

City:

County: spanning 30 Navajo
Chapters

Other Names: Navajo
Abandoned Uranium Mines

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▼SITE DESCRIPTION AND HISTORY

Description: Widespread mining and milling of uranium ore for Cold War defense purposes on the Navajo Nation led to the dispersion of radiation and heavy metal contamination in soil and water which has since raised health concerns for Navajo residents. In response to the concerns raised by the Navajo Nation at a November 4, 1993 Congressional hearing, US EPA initiated a study in 1994 aimed at assessing human exposure to radiation and heavy metals from abandoned uranium mines (AUMs).

Request for Superfund Listing: NNEPA has expressed strong interest in using Superfund listing to address

<http://yosemite.epa.gov/r9/sfund/overview.nsf/507c94f730e0ebf488256958005cda5f/d502c488f1841dc48...> 11/23/2004

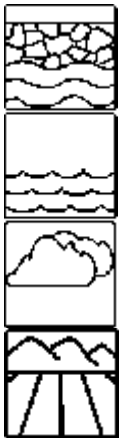
AUMs. At the 1993 Congressional hearing, the Navajo Nation identified the King Tutt Mine area as a priority for Superfund listing because it encompasses a dense cluster of AUMs. EPA completed a draft Integrated Assessment for the pilot area in 1998. Since then, Navajo AML has performed a significant amount of mine reclamation in the King Tutt mine area. NNEPA has requested a reassessment of the King Tutt mine, along with other areas of concern identified through EPA's investigation, to determine if Superfund designation is appropriate.

FUTURE ACTIONS: Foreseeable actions will include:

- (i) finalizing a work plan for the Navajo AUM project which will guide EPA's and NNEPA's efforts to assess and respond to risks associated with AUMs,
- (ii) initiate activities according to the Navajo AUM work plan, including reassessing the King Tutt Mine area, along with other mine areas identified through past investigations, to determine whether Superfund removal actions and/or Superfund listing is appropriate to address site related risks,
- (iii) continuing to perform community outreach to the Navajo Chapters where EPA gathers information about the AUMs, as well as other areas that request community involvement relating to AUM issues.

Site Responsibility:	NPL LISTING HISTORY
EPA lead on this Site Assessment with close involvement by Navajo Nation Environmental Protection Agency (NNEPA). Navajo Abandoned Mine Lands Program (AML) and the US Army Corps of Engineers are also important Partners.	Proposed Date: Final Date: Deleted Date:

▼ THREATS AND CONTAMINANTS



Uranium ore concentrations and its associated radioactivity varies widely at mining areas and natural formations across the Navajo Nation. Other contaminants of concern include arsenic and lead. EPA is evaluating the likelihood for offsite migration due to historic mining activities.

During the decay processes, the parent uranium-238, its decay products, and their subsequent decay products release a series of new elements and radiation, including radium and radon, alpha and beta particles, and gamma radiation. Alpha particles cannot pass through human skin, whereas, gamma radiation passes through more easily.

Because of the slow rate of decay, the total amount of natural uranium in the earth stays almost the same, but it can be moved from place to place through natural processes or by

human activities. When rocks are broken up by water or wind, uranium becomes a part of the soil. When it rains, the soil containing uranium can go into rivers and lakes. Mining, milling, manufacturing, and other human activities also move uranium around natural environments.

▼ CLEANUP APPROACH

Completion of Assessment: EPA, NNEPA, AML and USACE are currently producing a screening assessment of abandoned uranium mine sites across the Navajo Nation. Our primary focus is the New Mexico area of the Nation not yet addressed. The desktop assessment utilizes existing AUM data to create a GIS database. Depending on data gaps and at the discretion of NNEPA, EPA may follow through with additional sampling where there appears to be elevated health risks related to AUMs. Based on results of EPA's site discovery study, NNEPA will make decisions about areas to follow up with potential Preliminary Assessment/Site Investigation activities to support Site Listing decision making. Our goal is to complete the screening assessment phase by the end of 2006.

With respect to future work, EPA and NNEPA will coordinate closely with the Navajo Abandoned Mine Lands (AML). AML is a Navajo agency that reclaims AUMs with Surface Mining Control and Reclamation Act (SMCRA, 1977) authority and funding. Navajo AML estimates that there are approximately 1300 abandoned uranium mines throughout the Navajo Nation, of which they have reclaimed approximately 50 percent.

▼ Response Action Status



Aerial Surveys: The study entailed 41 aerial surveys of 33 Navajo Chapters, which encompass over 1,100 square miles, to identify sources of radiation (i.e., AUMs and naturally occurring deposits) followed by field sampling of possible mine features, potential drinking water sources and homes in the vicinity of radiation sources.

Residences: EPA is concerned about traditional Navajo hogans constructed of uranium ore, as well as contaminated soils in the vicinity of homes. Upon completing the aerial surveys, EPA notified communities in the vicinity of radiation sources that we could survey homes. This led us to sample 28 structures of which, two hogans were found to pose unacceptable health risk due to radiation exposure, notably gamma and radon levels. NNEPA is currently developing a strategy to conduct a comprehensive survey of contaminated structures to determine how widespread the problem may be.

Water: Ingestion of contaminated water has been identified as the exposure pathway of greatest concern. EPA sampled 226 water sources in the vicinity of radiation sources for uranium and other contaminants of concern, of which, 90 water sources were found to pose elevated health risks. Elevated health risks were only associated with unregulated water sources such as stock tanks, wells and springs. However, they were identified as drinking water sources by Chapter officials as sources used for drinking water by people that did not have running water. Elevated uranium and arsenic were the primary contaminants of concern which might be linked to AUMs. In addition, some water sources were found to pose elevated health risks due to lead plumbing and biological hazards. In January 2000, Navajo EPA (NNEPA) asked US EPA to pause field work until they could review our data and make recommendations about next steps.

Site Facts:

▼ ENVIRONMENTAL PROGRESS



Superfund Removal Actions: In October 2000, NNEPA asked EPA to remove two radioactive structures (hogans) in the Oljato (Monument Valley) and Teec Nos Pos (Four Corners) chapters. EPA negotiated with the families for several months to conduct the work and compensate them for replacement of the structures. EPA completed the removal actions in April 2001.

▼ POTENTIALLY RESPONSIBLE PARTIES

Potentially responsible parties (PRPs) refers to companies that are potentially responsible for generating, transporting, or disposing of the hazardous waste found at the site.

Investigations of the former mine leasees and operators are on-going.

▼ SITE DOCUMENTS AND REPORTS

Administrative Records: Site File at the EPA Region 9 Superfund Records Center

Records of Decision: N/A

Technical Documents:

Maps and Images:

- 1) [Black Mesa Chapter Map, October 2001](#)
- 2) [Bodaway/Gap Chapter Map, October 2001](#)
- 3) [Cameron Chapter Map, October 2001](#)
- 4) [Chilchinbito Chapter Map, October 2001](#)
- 5) [Chinle Chapter Map, October 2001](#)
- 6) [Coalmine Canyon Chapter Map, October 2001](#)
- 7) [Cove Chapter Map, October 2001](#)
- 8) [Greasewood Springs Chapter Map, October 2001](#)
- 9) [Kayenta Chapter Map, October 2001](#)
- 10) [Oljato Chapter Map, October 2001](#)
- 11) [Red Valley Chapter Map, October 2001](#)
- 12) [Rough Rock Chapter Map, October 2001](#)
- 13) [Steamboat Chapter Map, October 2001](#)
- 14) [Sweetwater Chapter Map, October 2001](#)
- 15) [Tachee/Blue Gap Chapter Map, October 2001](#)
- 16) [Teec Nos Pos Chapter Map, October 2001](#)
- 17) [Teesto Chapter Map, October 2001](#)
- 18) [Tuba City Chapter Map, October 2001](#)
- 19) [Tselani/Cottonwood Chapter Map, October 2001](#)

▼ COMMUNITY INVOLVEMENT

Public Meetings: In March 2001, EPA formed a team of Navajo health, environmental and education agencies to plan and conduct an intensive 10-week round of outreach to the 30 Chapters where water samples were collected. The outreach consisted of discussing the water data and how to reduce exposure. Presentations were frequently in the Navajo language and reached approximately 1000 people. EPA developed chapter specific maps, indicating the water sources sampled, pictures of the source (e.g. well, spring, etc.) and the relative risk of drinking the water. The Uranium Education Program at Diné College/Shiprock provided translations and extensive background material about the AUMs. NNEPA and AML provided information about their programs to address the AUM issues.

EPA has since participated in additional community sampling and outreach activities organized by the Navajo Nation and individual chapters including Cameron (Black Falls area), Kayenta and Church Rock.

Newsletters and Fact Sheets:

- 1) [May 1998 - U.S. EPA to Perform Helicopter Survey of Abandoned Uranium Mines](#)
- 2) [Sep 1998 - U.S. EPA to Test Water and Home Construction Materials in Monument Valley Area](#)
- 3) [Dec 2001 - Navajo Abandoned Uranium Mines Project Plan](#)

▼ SITE REPOSITORIES/LIBRARY SOURCES



The public information repositories for the site are at the following locations:

The most complete collection of documents is the official EPA site file, maintained at the following location:

Superfund Records Center
Mail Stop SFD-7C
95 Hawthorne Street, Room 403
San Francisco, CA 94105
(415) 536-2000

Enter main lobby of 75 Hawthorne street, go to 4th floor of South Wing Annex.

▼ CONTACTS

EPA SITE MANAGER:
ADDRESS:

PHONE NUMBER:
E-MAIL ADDRESS:

Andrew Bain/R9/USEPA/US, (SFD-8-2)
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San Francisco, CA 94105
415-972-3167
Bain.Andrew@epa.gov

**EPA COMMUNITY
INVOLVEMENT COORDINATOR:**

Wenona Wilson

ADDRESS: 75 Hawthorne St.
PHONE NUMBER: (415) 972-3239 or 1-800-231-3075
E-MAIL ADDRESS: Wilson.Wenona@epa.gov

PUBLIC INFORMATION CENTER: (415) 947-8701
E-MAIL ADDRESS: r9.info@epamail.epa.gov

STATE CONTACT: Stanley Edison
Navajo Nation Environmental Protection Agency/Superfund
Program
ADDRESS: PO Box 2946
Window Rock, AZ 86515
PHONE NUMBER: (928) 871-6861

PRP CONTACT:
ADDRESS:
PHONE NUMBER:

COMMUNITY CONTACT:
ADDRESS:
PHONE NUMBER:

After Hours (Emergency Response)
State Environmental Protection Agency
(800) 852-7550

US Environmental Protection Agency
(800) 424-8802

▼ MISCELLANEOUS INFORMATION

STATE: AZ
CONGRESSIONAL DISTRICT: 04
EPA ORGANIZATION: SFD-8-2

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